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CITATION:

Takashi, Munehisa ...[et al]. Sarcomatoid carcinoma of the bladder: a case report. 泌尿器科紀要 1992, 38(1): 67-70

ISSUE DATE:

1992-01

URL:

<http://hdl.handle.net/2433/117446>

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SARCOMATOID CARCINOMA OF THE BLADDER: A CASE REPORT

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We reported a case of sarcomatoid carcinoma of the bladder in a 78-year-old woman presenting with pollakisuria. She has remained well without any evidence of recurrence for 25 months after radical cystectomy. Microscopic examination revealed a composition almost exclusively of spindle and dedifferentiated cells, accompanied by only a few cells retaining epithelial features of differentiation. The latter cells were immunohistochemically positive for epithelial membrane antigen (EMA). A concomitant carcinoma in situ was present in the adjacent mucosa. Immunohistochemical exploration with EMA proved useful for reinforcing the conventional histological diagnosis.

(Acta Urol. Jpn. 38: 67-70, 1992)

Key words: Sarcomatoid carcinoma, Bladder, Immunohistochemistry, Epithelial membrane antigen

INTRODUCTION

Occasionally carcinomas and benign lesions in the urinary bladder are composed of many spindle and dedifferentiated epithelial cells resembling sarcomas. Such carcinomas have been described as sarcomatoid carcinoma, spindle and giant cell carcinoma, carcinosarcoma, psuedosarcoma, and metaplastic carcinoma¹⁻³⁾, and to date, about 30 cases have been reported in the literature⁴⁾. In documenting an additional case of sarcomatoid carcinoma of the bladder we report that immunohistochemical staining for epithelial membrane antigen (EMA) is useful for diagnosis of this variant.

CASE REPORT

A 78-year-old female presented with a complaint of pollakisuria persisting for about four months. She had a past history of uterus myoma, and urinalysis revealed 30 red blood cells and 20 white blood cells per high-power field. Urinary bacterial culture was negative. Cystoscopic examination revealed two solid tumors located at the dome of the bladder. Excretory pyelography showed no remarkable abnormalities in the upper urinary tract, and laboratory data were normal. Transurethral biopsy revealed that the tumor had an

invasive sarcomatous appearance. Subsequent work-up for staging revealed no evidence of distant metastasis. Under the diagnosis of T3N0M0 disease, the patient underwent radical cystectomy with lymphadenectomy and construction of an ileal conduit. Tegafur and uracil (UFT) were administered as postoperative adjuvant chemotherapy, and the patient has remained well without any evidence of recurrence for 25 months.

Pathological findings. Two solid tumors, sized $3.2 \times 2.6 \times 0.8$ cm and $0.8 \times 0.6 \times 0.4$ cm, were located at the junction of the dome and anterior wall of the bladder (Fig. 1).

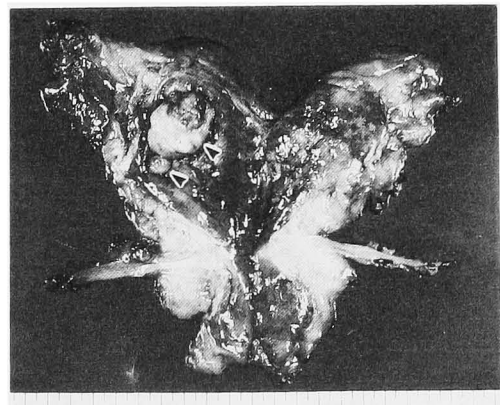


Fig. 1. Macroscopic appearance of the two tumors (arrowheads)

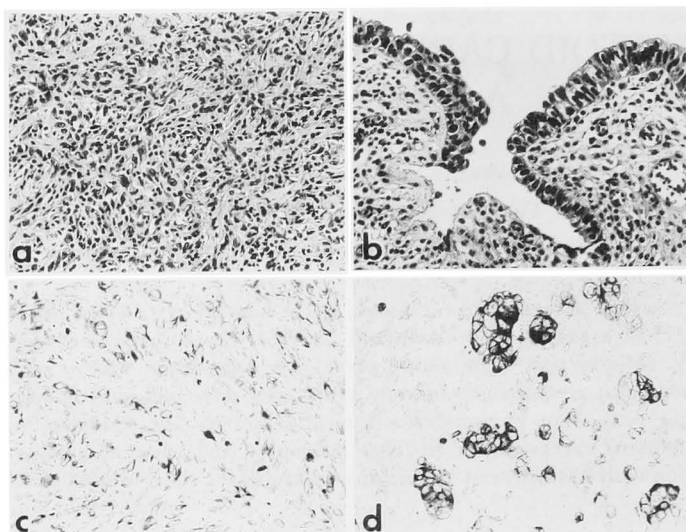


Fig. 2. (a) Spindle and dedifferentiated tumor cells infiltrating the muscle layer (HE $\times 95$). (b) Carcinoma in situ in the adjacent mucosa (HE $\times 105$) (c) Immunohistochemical localization of vimentin in spindle and dedifferentiated tumor cells ($\times 110$). (d) Immunohistochemical localization of epithelial membrane antigen in a few tumor cells ($\times 110$).

The two tumors were yellow-white, round and their surfaces were smooth. Histological examination revealed spindle-shaped and dedifferentiated tumor cells proliferating and invading the muscle layer and perivesical fatty tissue (Fig. 2a). Nuclear atypia were marked, and mitoses were also numerous. The larger tumor was connected with the smaller one under the mucosal layer, and the adjacent mucosa contained a carcinoma in situ (CIS, Fig. 2b). However, dissection of pelvic lymph nodes revealed no metastases.

An indirect immunoperoxidase method was applied to 4- μ m sections of 10% formalin-fixed, paraffin-embedded tissues, as previously described⁵⁾. In brief, the sections were treated with 100% methanol and 0.3% hydrogen peroxidase for 30 minutes to inactivate endogenous peroxidase. They were washed in phosphate-buffered saline (PBS, pH 7.2) and then incubated with primary antibodies for 90 minutes at room temperature. After being washed in PBS, the sections were incubated with the relevant second antibodies labeled with horseradish peroxidase for 60 minutes at

room temperature. After another wash in PBS, they were reacted with 0.025% 3,3'-diaminobenzidine solution containing 10 mM hydrogen peroxide and 10 mM sodium azide and were then counterstained with methyl green.

Many spindle and dedifferentiated cells were immunostained for vimentin (Dakopatts, Fig. 2c); and the few tumor cells retaining epithelial features of differentiation strongly expressed EMA (Dakopatts, Fig. 2d). By contrast, the tumor cells were not stained for desmin (BioGenex), myoglobin (Dakopatts), muscle-specific actin (Enzo Biochem), lysozyme (Dakopatts), α_1 -antichymotrypsin (Dakopatts), keratin (Dakopatts) or carcinoembryonic antigen (Dakopatts), the antibodies absorbed with perchloric acid extracts from human spleen and blood group A and B erythrocytes). The histological and immunohistochemical findings thus led to the diagnosis of sarcomatoid carcinoma of the bladder.

DISCUSSION

Rare variants of invasive transitional or

squamous cell carcinoma of the bladder have been found to be composed of interlacing sheets of predominant spindle cells with variable amounts of cytoplasm. Giant tumor cells are often present and are sometimes numerous¹⁾. Meticulous microscopic examination has revealed that such tumors are usually associated with foci of conventional transitional cell carcinoma or one of the less common variants of carcinoma. Thus Young et al. reported in detail 12 cases of sarcomatoid carcinoma, and showed that malignant spindle cells were accompanied by CIS (3 cases) or various forms of invasive epithelial malignancy, including transitional cell carcinoma (11 cases), adenocarcinoma (2 cases), squamous cell carcinoma (2 cases) and small cell undifferentiated carcinoma (2 cases)⁴⁾. The fact that the present case demonstrated CIS in the adjacent mucosa is interesting in this respect. The other tumors that might confuse the differential diagnosis are sarcomas, including leiomyosarcoma, malignant fibrous histiocytoma and pleomorphic rhabdomyosarcoma lesions, and two benign mesenchymal proliferations: postoperative spindle cell nodule^{4,6)} and inflammatory pseudotumor^{4,7)}, especially, when only small specimens obtained by biopsy are available¹⁾.

However, in addition to the presence of CIS or invasive carcinoma of various types, immunohistochemical exploration can assist in diagnosis of this variant^{3,4)}. The immunohistochemical finding of EMA-positive tumor cells is of particular diagnostic significance, as shown in this case. EMA is recognized by antisera raised against milk fat globule membrane, and has been found in a wide variety of normal epithelia and neoplastic tissues⁸⁾. We immunohistochemically localized transitional epithelia and transitional cell carcinomas of the bladder⁵⁾. Thus, EMA is regarded as a marker of epithelial differentiation.

However, in the present case most spindle and dedifferentiated tumor cells were positive only for vimentin. Ramaekers et al. earlier demonstrated that dedifferentiated carcinoma cells sometimes can express

vimentin, a intermediate-sized filament, which is usually found in tumor cells of mesenchymal origin⁹⁾. Wick et al. similarly could immunohistochemically detect vimentin in 11 of the 12 cases of sarcomatoid carcinoma of the bladder³⁾.

Clinical presentation with regard to age, sex distribution and symptoms in patients with sarcomatoid carcinoma is similar to that with transitional cell carcinoma of the bladder. Radical extirpation is the only choice of treatment¹⁰⁾; radiation and chemotherapy seem to be ineffective. The prognosis of patients with this lesion is generally poor, because the tumors are always invasive and usually have already reached a high stage by the time of presentation^{1,4,10)}.

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- (Received on February 14, 1991)
(Accepted on April 3, 1991)

和文抄録

膀胱肉腫様癌の1例

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頻尿にて受診した78歳女子にみられた膀胱肉腫様癌の1例を報告する。本症例は、膀胱全摘除術後25カ月経過するが、再発所見はなく健在である。病理組織学には大部分が紡錘型の脱分化した腫瘍細胞により構成され、一部に上皮の特徴を有する分化した腫瘍細胞が認められた。後者の腫瘍細胞は免疫組織化学的に

epithelial membrane antigen (EMA) が陽性であった。また腫瘍の近傍の粘膜には上皮内癌が随伴していた。EMA の免疫組織化学的検索は従来の組織診断を確認するのに有用であった。

(泌尿紀要 38: 67-70, 1992)